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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|-------------------------|------------------|
| 09/807,945 | 07/12/2001 | Wolfgang Schmidbauer | 608.0011USU | 9346 |
| 7590 10/20/2003 | | | | |
| Charles N J Ruggiero Ohlandt Greeley Ruggiero & Perle One Landmark Square Stamford, CT 06901-2682 | | | EXAMINER HUG, ERIC J | |
| | | | ART UNIT 1731 | PAPER NUMBER |

DATE MAILED: 10/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|--|--------------------------------------|---|--|
| <p align="center">Office Action Summary</p> | Application No. 09/807,945 | Applicant(s) SCHMIDBAUER ET AL. | |
| | Examiner Eric Hug | Art Unit 1731 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

P riod for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-22 and 29-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-22 is/are allowed.
- 6) ☒ Claim(s) 29-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

The following is in response to the amendment filed on July 2, 2003.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 29-31 and 33-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Gell et al (US 3,888,650). Gell discloses an elongated glass melting furnace with an upstream melting zone, an intermediate refining zone, and downstream conditioning zone. Heating is provided in both the melting zone and refining zone by alternating electric current (column 5, lines 39-48; column 2, lines 32-40; also see Figures). Heating in the refining zone is supplemented by oxygen-fuel burners provided above the glass melt (column 2, lines 64 to column 3, line 16). The induced electric heating current provides control over the flow of the melt from the melting zone to the conditioning zone.

2. Claim 29 is rejected under 35 U.S.C. 102(b) as being anticipated by Fredrikson et al (US 4,441,191). Fredrikson discloses a horizontal channel-type furnace for continuous flow of a molten metal, whereby the metal is molten using induction heating. The inlet to the apparatus is through the roof, therefore it is an open furnace.

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3. Claim 29 is rejected under 35 U.S.C. 102(b) as being anticipated by Worner (US 3,632,335). Worner discloses a means for separation of molten materials using a horizontal open furnace that provides for continuous flow of the molten materials. Heating for the molten material may be effected by inductive heaters (column 4, lines 24-32). Such heating provides for temperature differentials that allow for flow.

4. Claim 29 is rejected under 35 U.S.C. 102(b) as being anticipated by Bamji et al (US 4,589,637). Bamji discloses an apparatus for melting scrap metal comprising a horizontal refractory-lined trough where scrap is fed to one end and molten metal is removed from the other. The heating and flow of metal can be effected by means of an induction heater 14 (see Figure 2).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 29-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moreau et al (US 5,609,661) in view of Gell et al. Moreau discloses an outflow channel for transferring and conditioning a molten glass from a melting/refining zone to a lower temperature forming zone. The channel is divided into several zones with each zone having independent heat control. The channel comprises a duct with a bottom wall, sidewalls, and an upper vault, which serves not to enclose or seal the channel but to provide heat shields or dams (or similar) to delimit the zones (column 2, lines 51-59). The flow of the molten glass is induced by a temperature gradient

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produced within the channel. Heat is provided to each zone via fuel-air burners or radiant tubes disposed above the glass melt, or by any electrical means, the given example being electrodes submerged in the glass melt (column 5, lines 39-45). These means of heating can be combined for temperature control (column 9, lines 42-43; column 10, lines 41-43). Moreau does not expressly disclose using inductive heating as a means of controlling a zone temperature, although Moreau suggests that any type of electric heating can be used. Gell (described above) discloses using inductive heating to move a molten material through a horizontal furnace. Thus, at the time of the invention, it would have been obvious to one skilled in the art to use the well-known means of inductive heating as a source of heating in the apparatus of Moreau, as exemplified by Gell et al., either in one or several locations.

With regards to the different types of heating in the dependent claims, these are all disclosed by Moreau as explained above.

Allowable Subject Matter

Claims 15-22 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

The claims are allowable primarily for the combination of a skull channel configured as a horizontal U-shaped cage with an open top formed by a plurality of cooling pipes and an induction coil arranged about the channel so that the open top is free of the coil. With respect to Applicant's arguments, the prior art does not teach or suggest a melting/refining device having at least this combination of features.

Response to Arguments

Applicant's arguments filed July 2, 2003 have been fully considered and are persuasive with respect to the prior art rejections presented in the previous office action, namely the rejection of claims 15-17 under 35 U.S.C. 102(b) as being anticipated by Wenckus et al (US 4,049,384), the rejection of claims 18-20 under 35 U.S.C. 103(a) as being unpatentable over Wenckus in view of Bubon et al (US 5,383,949), the rejection of claims 21-22 under 35 U.S.C. 103(a) as being unpatentable over Wenckus in view of Masakiyo (JP 57-095834), the rejection of claims 23-24, 26 and 28 under 35 U.S.C. 103(a) as being unpatentable over Wenckus in view of Pecoraro et al. (US 4,792,536), the rejection of claim 25 under 35 U.S.C. 103(a) as being unpatentable over Wenckus in view of Pecoraro and Geffcken (US 3,127,155), and the rejection of claim 27 under 35 U.S.C. 103(a) as being unpatentable over Wenckus in view of Pecoraro and Braglia et al. (US 6,014,403). The applied references teach vertically disposed crucibles for melting glass rather than a U-shaped cage structure configured for horizontal flow. Therefore, these rejections have been withdrawn.

Applicant has overcome the rejection of claims 23-28 under 35 U.S.C. 112, second paragraph, by cancellation.

The newly added method claims 29-35 read over the prior art references applied previously. However, new grounds of rejection for these claims are presented above.

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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Baucke et al (US 5,509,951) discloses a process for fining glass melts in an open furnace whereby a current is applied to a flowing melt.

Sundberg (US 3,875,322) discloses an electric induction furnace with an open top for circulating a metal melt contained within the furnace.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

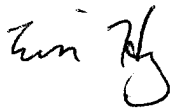
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Hug whose telephone number is 703 308-1980. The examiner can normally be reached on Monday through Friday, 9:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 703 308-1164. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0651.


jeh


STEVEN P. GRIFFIN
SUPERVISORY PATENT EXAMINER
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